

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A substrate processing unit comprising:

a processing vessel that accommodates a substrate;

a cleaning gas supply system that supplies a cleaning gas into the processing vessel to be used in performing a cleaning of an interior of the processing vessel;

an exhauster that includes rotor blades that exhaust the interior of the processing vessel by rotation of the rotor blades;

an operating state detector that detects effects of collisions between a gas and the rotor blades so as to determine a change in an amount of or a molecular weight of ~~[[a]]~~ the gas that passes through the exhauster ~~collides with the rotor blades~~; and

an end point detector that detects an end point of the cleaning based on a detection result from the operating state detector.

Claim 2 (Previously Presented): The substrate processing unit of claim 1, wherein the operating state detector includes a vibration detector that detects the change in the amount of or the molecular weight of the gas that collides with the rotor blades by detecting a vibration of the exhauster.

Claim 3 (Previously Presented): The substrate processing unit of claim 2, wherein the vibration detector includes a sound wave detector that detects a sound wave produced by the vibration of the exhauster.

Claim 4 (Original): The substrate processing unit of claim 2, wherein the end point detector detects the end point based on a change in the intensity of the vibration.

Claim 5 (Previously Presented): The substrate processing unit of claim 1, wherein the exhauster includes a rotatable body of revolution for exhaust, and the operating state detector includes a rotation detector that detects the change in the amount of or the molecular weight of the gas that collides with the rotor blades by detecting a rotation of the body of revolution.

Claim 6 (Withdrawn): The substrate processing unit of claim 1, wherein the exhauster includes a rotatable body of revolution for exhaust and a driving mechanism for rotating the body of revolution by a current supply, and wherein the operating state detector includes a current detector that detects a current supplied to the driving mechanism.

Claim 7 (Withdrawn): The substrate processing unit of claim 1, wherein the exhauster includes a rotatable body of revolution for exhaust and a magnetic bearing for supporting the body of revolution by a current supply, and wherein the operating state detector includes a current detector that detects a current supplied to the magnetic bearing.

Claim 8 (Currently Amended): A substrate processing unit comprising:  
a processing vessel that accommodates a substrate;  
a process gas supply system that supplies a process gas into the processing vessel to be used in performing a processing on the substrate;

an exhauster that includes rotor blades that exhaust an interior of the processing vessel by rotation of the rotor blades;

an operating state detector that detects effects of collisions between a gas and the rotor blades so as to determine a change in an amount of or a molecular weight of ~~[[a]]~~ the gas that passes through the exhauster ~~collides with the rotor blades~~; and

an end point detector that detects an end point of the processing based on a detection result from the operating state detector.

Claim 9 (Previously Presented): The substrate processing unit of claim 8, wherein the operating state detector includes a vibration detector that detects the change in the amount of or the molecular weight of the gas that collides with the rotor blades by detecting a vibration of the exhauster.

Claim 10 (Previously Presented): The substrate processing unit of claim 9, wherein the vibration detector includes a sound wave detector that detects a sound wave produced by the vibration of the exhauster.

Claim 11 (Original): The substrate processing unit of claim 9, wherein the end point detector detects the end point based on a change in the intensity of the vibration.

Claim 12 (Previously Presented): The substrate processing unit of claim 8, wherein the exhauster includes a rotatable body of revolution for exhaust, and the operating state detector includes a rotation detector that detects the change in the amount of or the molecular

weight of the gas that collides with the rotor blades by detecting a rotation of the body of revolution.

Claim 13 (Withdrawn): The substrate processing unit of claim 8, wherein the exhauster includes a rotatable body of revolution for exhaust and a driving mechanism for rotating the body of revolution by a current supply, and wherein the operating state detector includes a current detector that detects a current supplied to the driving mechanism.

Claim 14 (Withdrawn): The substrate processing unit of claim 8, wherein the exhauster includes a rotatable body of revolution for exhaust and a magnetic bearing for supporting the body of revolution by a current supply, and wherein the operating state detector includes a current detector that detects a current supplied to the magnetic bearing.

Claims 15-16 (Canceled).

Claim 17 (Previously Presented): The substrate processing unit of claim 1, wherein the end point detector detects the end point of the cleaning by determining whether the amount of or the molecular weight of a gas colliding with the rotor blades stabilizes with the progress of the cleaning following a period of initially instability.

Claim 18 (Previously Presented): The substrate processing unit of claim 17, wherein the operating state detector includes a vibration detector that detects a vibration of the exhauster.

Claim 19 (Previously Presented): The substrate processing unit of claim 18, wherein the vibration detector includes a sound wave detector that detects a sound wave produced by the vibration of the exhauster.

Claim 20 (Currently Amended): A substrate processing unit comprising:  
a processing vessel that accommodates a substrate;  
a cleaning gas supply system that supplies a cleaning gas into the processing vessel to be used in performing a cleaning of an interior of the processing vessel;  
an exhauster that includes rotor blades that exhaust the interior of the processing vessel by rotation of the rotor blades;  
operating state detector means for detecting effects of collisions between a gas and the rotor blades so as to determine a change in an amount of or a molecular weight of [[a]] the gas that passes through the exhauster ~~collides with the rotor blades~~; and  
means for detecting an end point of the cleaning based on a detection result from the operating state detector means.

Claim 21 (Currently Amended): A substrate processing unit comprising:  
a processing vessel that accommodates a substrate;  
a process gas supply system that supplies a process gas into the processing vessel to be used in performing a processing on the substrate;  
an exhauster that includes rotor blades that exhaust the interior of the processing vessel by rotation of the rotor blades;

operating state detector means for detecting effects of collisions between a gas and the rotor blades so as to determine a change in an amount of or a molecular weight of ~~[[a]]~~ the gas that passes through the exhauster ~~collides with the rotor blades~~; and

means for detecting an end point of the processing based on a detection result from the operating state detector means.